

Amendments to the Specification:

Please replace the paragraph beginning at page 14, line 19, with the following amended paragraph:

Last, but not least, the main signal $y_{main}(n)$ may be present in the received signal. If the service type on the main line is the same as the service type on the disturber lines, then the main signal will have an identical description with the one given above for each disturber signal. If the service type on the main line is for example an ADSL service, then the main signal will employ DMT modulation and its description will be different (for details on the description of a DMT main signal see co-pending patent application Serial No. _____ Serial No. 09/710,579 titled "Method and Apparatus for Mitigation of Disturbers in Communication systems" assigned to the assignee herein and filed on even date herewith. In several cases the receiving modem may be able to force the modem transmitting on the same line to silence through the use of an appropriate command. In that situation there is no main signal component in the received signal and $y_{main}(n)=0$. In any case, the main signal does not play an important role in the disturber characterization process and its exact description is not required in the current context to understand the present invention. In fact, the main signal is removed from the received signal before the identification proceeds as described next.

Please replace the paragraph beginning at page 16, line 19, with the following amended paragraph:

Figure 6 is a flow diagram of the overall identification process. The first step in the process for the present invention in one embodiment in a DSL modem would be the collection of the aggregate disturbance signal 602. Note that with specific reference to an ADSL modem, the identification operations may be performed during Medley, after time equalization (TEQ) and frequency equalization (FEQ) training. Thus, in order to obtain the aggregate disturbance signal, one would need to remove the main signal. For an example of particular details of the main signal removal procedure see co-pending patent application Serial No. _____ Serial No. 09/710,579 titled "Method and Apparatus for Mitigation of Disturbers in Communication systems" assigned to the assignee herein and filed on even date herewith. It may be possible that in other uses of the invention, the signal from the main channel is not present during identification time. This may

happen for example if identification is performed before the main channel transmitter is powered on or is otherwise allowed to transmit, or is instructed to not transmit. Then, the received signal is simply the aggregated disturbance signal. It is clear that in this situation the main signal removal step is not required.

Please replace the paragraph beginning at page 31, line 15, with the following amended paragraph:

The disturber signal $y_{dist}(n)$ in Equation (1) has been described so far as a mixture of disturber signals plus additive color noise. The purpose of the co-channel identification procedure is to describe the structure of the disturber signal. So far we have described how to describe the mixture of disturbers. The remaining component of the disturber structure is the residual noise term $v(t)$ in Equation (1). To complete the description of the disturber structure, we obtain a description of the random signal $v(t)$. We will consider that $v(t)$ is a zero-mean Gaussian random process. The power spectral density of this signal can be computed using the prediction error obtained from the co-channel models previously identified. An example of such computation is described in U.S. Patent Application Serial No. 09/523,065, filed March 10, 2000, entitled Method for Automated System Identification, to C. Galarza, D. Hernandez, and M. Erickson, and assigned to ~~Voyan Technology Corporation of Santa Clara, California~~ the assignee herein. In some applications, it may be necessary to compute the noise model when only one disturber co-channel is considered at a time. The noise models obtained with this procedure are important for successive disturber cancellation. For an explanation, see co-pending patent application ~~Serial No. —~~ Serial No. 09/710,579 titled "Method and Apparatus for Mitigation of Disturbers in Communication Systems" assigned to the assignee herein and filed on even date herewith.

Please replace the paragraph beginning at page 34, line 18, with the following amended paragraph:

If we let h_i be the co-channel impulse response obtained using the batch algorithm, then once the batch identification algorithm is completed, the switch in Figure ~~[[19]]~~ 12 is switched from the initial co-channel position to the ID'd co-channel position. The new identified co-channel is used

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to re-design the PAM receiver and the procedure is reiterated K times until convergence. The co-channel obtained after the k -th iteration is h_k .

Please replace the paragraph beginning at page 37, line 13, with the following amended paragraph:

After the training time 1520 is completed, the next step is identification 1530 of possible crosstalk sources. Within the identification 1530, may be tasks such as detection of service types present 1532, baud-rate estimation 1534, setup of co-channel estimation 1536 and initial co-channel estimation 1538. After identification 1530 of possible crosstalk sources has been completed, the next step is system design 1540. The system design 1540, may include, for example, such tasks as compensator design 1546, and a final co-channel estimation 1548. For an example of compensator design see co-pending patent application Serial No. ~~_____~~ Serial No. 09/710,579 titled "Method and Apparatus for Mitigation of Disturbers in Communication Systems" assigned to the assignee herein and filed on even date herewith.

Please replace the paragraph beginning at page 38, line 3, with the following amended paragraph:

Transmission time 1550, also sometimes referred to as showtime, may include, compensation deployment 1554 and parameter adaptation 1556. For an example of compensation deployment see co-pending patent application Serial No. ~~_____~~ Serial No. 09/710,579 titled "Method and Apparatus for Mitigation of Disturbers in Communication Systems" assigned to the assignee herein and filed on even date herewith.